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(71) Applicant: **TOYOTA MOTOR CORP**

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(72) Inventor: **FUKADA ARATA**

**(54) PRODUCTION OF DIFFERENTIAL THICKNESS  
ALLOYED HOT DIP ZINC COATED STEEL SHEET**

**(57) Abstract:**

**PURPOSE:** To form alloyed layers contg. Fe at an equal concn. on both faces of a steel sheet and to develop an alloyed hot dip Zn plated steel sheet which is excellent in various characteristics by forming hot dip Zn coating layers contg. Al at different ratios on both faces of the steel sheet to different thicknesses, then subjecting the front and rear surfaces of the steel sheet simultaneously to an alloying heat treatment.

**CONSTITUTION:** The cold rolled steel sheet 6 is un-coiled from a coil 7 and after the steel sheet is annealed in a continuous annealing furnace 8, a hot dip Zn coating bath 11 contg. 0.12wt% Al is coated by rollers 12, 13 on one face of the steel sheet 6. The coating weight of the hot dip Zn coating bath is adjusted to 60g/m<sup>2</sup> by an air blower 14 in succession thereof. The hot dip Zn coating bath 16 contg. 0.15wt% Al is then coated on the opposite surface of the steel sheet by rollers 17, 18. The coating weight of the hot dip Zn plating bath is adjusted to 30g/m<sup>2</sup> by an air blower 19. Such plated steel sheet is passed through an alloying heat treatment furnace 20 and an averaging furnace 21 to counter diffuse the Zn and the Fe of the steel sheet into each other and to form the Zn-Fe alloyed plating layers contg. the Fe at the equal concn. on both faces of the steel sheet. The steel sheet, on

both the front and rear surfaces of which the alloyed hot dip Zn coatings are formed of the same Fe-Zn compsn. but with different thicknesses, and which has the excellent corrosion resistance, press formability, weldability, etc., is produced.

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